UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
SHAH, PARAS D

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

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<tr><td rowspan="2">Office Action Summary</td><td>Application No.
10/722,038</td><td>Applicant(s)
PECK, JEFF</td></tr>
<tr><td>Examiner
PARAS SHAH</td><td>Art Unit
2626</td><td></td></tr>
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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 October 2008*.
2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5,8-16 and 20* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-3,5,8-16, and 20* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

1.   This Office Action is in response to the Arguments and Amendments filed on

10/05/2008. Claims 1-3, 5, 8-16, and 20 remain pending and have been examined,

while claims 4, 6, 7, 17, 18, and 19 have been cancelled. The Applicants' remarks have

been carefully considered, but they are not persuasive and do not place the claims in

condition for allowance. Accordingly, this Action has been made FINAL.

2.   All previous objections and rejections directed to the Applicant's disclosure and

claims not discussed in this Office Action have been withdrawn by the Examiner.

Response to Arguments

3.   Applicant's arguments, see pages 6-10, filed on 10/05/2008 with respect to the

rejection(s) of claim(s) 1, 9, and 14 under Gentle in view of Dowdal have been fully

considered and are not persuasive. No new references have been applied in view of the

incorporation of the limitations from dependent claims in the independent claims.

In response to the claims 1, 9, and 14, the Applicant argues that Gentle in view of

Dowdal do not specifically teach measuring an average packet delay time by jitter

buffer. The Applicant argues that only a calculation of the relative delay is performed by

a VPU and therefore fails to teach the mentioned limitation. The Examiner respectfully

disagrees with this assertion. Referring to Dowdal, in col. 2, lines 40-42 and col. 5, lines

51, it is described that such buffer is located in the VPU. Hence, the determination of

the average packet delay either within the buffer or the playout would have been

obvious to one of ordinary skill in the art for the purpose of removing jitter (see KSR vs.

Teleflex, Rationales B, D , and E). The measuring of the average packet delay is also

performed by Dowdal in col. 4, lines 42-60, where an estimated and recorded time of

the packet is used when calculating the average delay. Further, the applicant does not

specify how the measuring is being conducted in the Specification. Thus, the measuring

of the delay occurs by the calculation being based on actual recorded packet time.

Further, the Applicant has not made any argument as to what the differences lies

between the prior art and the claimed limitation, but rather cites a portion of the prior art

and what it does not teach. In response to the second argument, the Applicant argues

that the cited references do not specifically teach the sending of the average packet

delay to the VAD. The Examiner respectfully disagrees. The primary reference by

Gentle teaches the sending of the delay to the VAD in paragraph [0051], where the jitter

is forwarded to the VAD 220. Further, the secondary reference of Dowdal was applied

to teach the average packet delay being used instead of the jitter as taught by Gentle.

Hence, Gentle modified by Dowdal teaches the claimed limitation as mentioned in the

independent claims.

All rejections as to the claims are maintained.

All claims not discussed above are rejected similar to the arguments presented

above.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1, 5, 7, 9, 13, 14, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gentle et al. (US 2004/0073692) in view of Dowdal (US 7,346,005).

As to claims 1 and 14, Gentle teaches a method, comprising:

receiving a plurality of packets (see [0036], VAD monitors packet structures in incoming digital voice stream) with audio information (see Abstract, audio stream, also see [0036], voice) (e.g. Applicant defines audio information to include voice and silence (see page 4, [0006], lines 3-5). Audio packets are retrieved.);

determining by a voice activity detector (see [0036], VAD 220) whether said audio information represents voice information (see [0036], VAD determines if voice activity is present) (e.g. The determination of the audio information is found by the voice activity detector 220.); and

buffering said audio information in a jitter buffer (see Figure 3, buffer manager 330) after said determination (see [Figure 2, VAD 220). The reference also teaches the use of a computer entailing a computer readable medium for the above limitations (see [0030])) (e.g. Audio information is buffered.).

wherein said determining comprises:

receiving frames of audio information at a voice activity detector (see [0036], packet structures are received);

measuring at least one characteristic (see [0051], [0036], and [0004],

where the Reference discloses convention technique and shows an alternative

based on silence threshold to determine voice activity and energy level

measurements) of said frames (see [0036], packet structure)

determining a start of voice information based on said measurements (see

[0052], VAD 220 determines silence or nonsilence as well as beginning and

endpoints); and

determining an end to said voice information based on said (see [0052],

VAD 220 determines silence or nonsilence as well as beginning and endpoints)

and a delay interval (see [0051], timing measurement module used to determine

jitter by VAD 220); and

adjusting of the delay interval (see [0043], timing measurement module

allows adaptive control of FIFO delay)

However, Gentle does not specifically teach the adjusting of the delay

interval based on an average packet delay time.

Dowdal teaches the adjusting said delay interval to correspond to an

average packet delay time (see col. 4, lines 33-60, delay between packets are

calculated and a calculated running average is maintained in order to reset the

value of the FIFO buffer for playout).

It would have been obvious to one of ordinary skilled in the art at the time

the invention was made to have modified the voice based packet network as

taught by Gentle with the use of a delay based on the average packet delay time

as taught by Dowdal. The motivation to have combined the two references

involves the improvement in audio quality for effective playout of audio by

minimizing jitter and delay (see Dowdal, col. 1, lines 15-21).

As to claim 5, Gentle in view of Dowdal teaches all of the limitations as in claim

1, above.

Furthermore, Gentle teaches said characteristic comprises an estimate of

an energy level for said frame (see [0051], energy level measurement can be

employed by VAD 220) (e.g. An energy level is used to determine if speech is

present.).

As to claims 7 and 19, Gentle in view of Dowdal teaches all of the limitations as

in claims 1 and 14, above.

Furthermore, Dowdal teaches measuring an average packet delay time by

said jitter buffer (see Dowdal, (see col. 4, lines 33-60, delay between packets

are calculated and a calculated running average is maintained in order to reset

the value of the FIFO buffer for playout).

Furthermore, Gentle and Dowdal teaches sending said average packet

delay time (see Dowdal, col. 4, lines 33-60) to said voice activity detector (see

Figure 2, acoustic prioritization agent 232, and VAD 220 and [0041]) (e.g. The

prioritization agent communicated with VAD the packet beginning and endpoints

for synchronization).

As to claim 9, Gentle teaches a system comprising:

an antenna (see [0030], radio, telephone, wired analog, etc.)(e.g. It is inherent that digital phones consist of built-in antenna as well as a receiver for hearing audio information and transmitter for transmitting information.);

a receiver connected to said antenna (see [0030], radio, telephone, wired analog, etc. and see Figure 3, 228, receives information from first user and [0040]) to receive a frame of information (e.g. The receiver receives the packets of information from first user)

a voice activity detector (see [0036], VAD determines if voice activity is present) to detect voice information in said frame see [0036], VAD monitors packet structures in incoming digital voice stream) (e.g. The determination of the audio information is found by the voice activity detector 220.); and

a jitter buffer (see Figure 3, buffer manager 330) to buffer said information after said detection by said voice activity detector buffer (see Figure 2, VAD 220)).

wherein said voice activity detector receives frames of audio information, measures at least one characteristic of said frames (see [0051], [0036], and [0004], where the Reference discloses convention technique and shows an alternative based on silence threshold to determine voice activity and energy level measurements and (see [0036], packet structure), determines a start of voice information based on said measurements (see [0052], VAD 220

determines silence or nonsilence as well as beginning and endpoints),

determines an end to said voice information based on said (see [0052], VAD 220

determines silence or nonsilence as well as beginning and endpoints) and a

delay interval (see [0051], timing measurement module used to determine jitter

by VAD 220), adjusting of the delay interval (see [0043], timing measurement

module allows adaptive control of FIFO delay)

However, Gentle does not specifically teach the adjusting of the delay

interval based on an average packet delay time.

Dowdal *et al.* teaches the adjusting said delay interval to correspond to an

average packet delay time (see col. 4, lines 33-60, delay between packets are

calculated and a calculated running average is maintained in order to reset the

value of the FIFO buffer for playout).

It would have been obvious to one of ordinary skilled in the art at the time

the invention was made to have modified the voice based packet network as

taught by Gentle with the use of a delay based on the average packet delay time

as taught by Dowdal. The motivation to have combined the two references

involves the improvement in audio quality for effective playout of audio by

minimizing jitter and delay (see Dowdal, col. 1, lines 15-21).

As to claim 13, Gentle in view of Dowdal teaches all of the limitations as in claim

9, above.

Furthermore, Gentle teaches said voice activity detector further comprises

an estimator to estimate energy level values (see [[0051], energy level

measurement by VAD 220) (e.g. Energy levels are estimated.);

a voice classification module connected to said estimator to classify

information for said frame (see [0051], VAD 220 classifies based on silence or

non-silence)

6.   Claims 2, 3, 12, 15, and 16 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Gentle in view of Dowdal, as applied to claims 1, 9, and 14 above,

in view of Clemm (US 6,865,162).

As to claims 2 and 15, Gentle in view of Dowdal teach a voice based packet

network.

However, Gentle in view of Dowdal. does not specifically teach the

buffering of a portion of said audio information in a pre-buffer for a predetermined

time interval.

Clemm does teach the use of a buffer (see col. 2, line 31) for a

predetermined time (see col. 2, lines 31-33) prior to said determining (see Figure

1, elements 110 and 120 and col. 2, lines 30-37) (e.g. A pre-buffer is used.).

It would have been obvious to one of ordinary skilled in the art at the time

the invention was made to have modified the voice based packet network as

taught by Gentle in view of Dowdal with the buffer before the voice activity

detector as taught by Clemm. The motivation to have combined the two

references involve the elimination of clipping associated with voice activity detector directed during silence suppression (see Clemm col. 2, lines 47-48).

As to claims 3 and 16, Gentle in view of Dowdal teaches all of the limitations as in claims 1 and 13, above.

Furthermore, gentle teaches sending said information from the jitter buffer to an end user (see Figure 3, second user, 312) (e.g. The applicant denotes the endpoint to be defined as the human user (see Applicant's Specification, page 8, [0018], lines 5-6).(Further, the sending of audio information to the user from the pre-buffer would have been apparent with the teaching presented by Clemm to avoid clipping).

As to claim 12, Gentle in view of Dowdal teach all of the limitations as in claim 9.

Furthermore, Gentle in view of Dowdal *et al.* teach a voice packet based network.

However, Gentle in view of Dowdal do not specifically teach the buffering of a portion of said audio information in a pre-buffer for a predetermined time interval.

Clemm teaches further comprising a buffer to store pre-threshold speech during detection by voice activity detector (see Figure 1, elements 110 and 120 and col. 2, lines 30-37) (The reference buffers a pre-threshold speech based upon two values, from a delay.)

It would have been obvious to one of ordinary skilled in the art at the time

the invention was made to have modified the voice based packet network as

taught by Gentle in view of Dowdal with the buffer before the voice activity

detector as taught by Clemm. The motivation to have combined the two

references involve the elimination of clipping associated with voice activity

detector directed during silence suppression (see Clemm ,col. 2, lines 47-48).

7.   Claims 8, 10, 11, and 20 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Gentle in view of Dowdal as applied to claim 9 above, and further in

view of Sih *et al.* (US 5,920,834).

As to claims 8 and 20, Gentle in view of Dowdal teaches all of the limitations as

in claim 1 and 14, above.

Furthermore, Gentle teaches retrieving a frame (see Figure 2, output of

212) of audio information from said packets (e.g. Audio information in the form of

voice is received, which has undergone pulse code modulation);

canceling echo from said frame of audio information (see echo canceller

216); and

sending said frame of audio information to a voice activity detector (see

Figure 6, output of echo canceller 216 to input of VAD 220).

However, Gentle in view of Dowdal do not specifically teach the receiving

of an echo cancellation reference signal.

Sih does teach receiving an echo cancellation reference signal (col. 6, lines 14-18) and Figure 2, echo canceller 10, z'(n) is the reference signal.);

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have modified the voice based packet network as taught by Gentle in view of Dowdal with the use of a reference signal to cancel echo as taught by Sih for the purpose of noise suppression (see Sih, col. 3, lines 5).

As to claim 10, Gentle in view of Dowdal teach all of the limitations as in claim 9.

Furthermore, Gentle in view of Dowdal teach a voice packet based network.

However, Gentle in view of Dowdal do not specifically teach the echo canceller connected to a receiver to cancel the echo.

However, Sih *et al.* does teach the echo canceller being connected to a receiver (see Figure 1, elements 14 and 10) (e.g. It is evident that a transceiver consists of a receiver and a transmitter).

It would have been obvious to one of ordinary skilled in the art at the time the invention was made to have the echo canceller connected to a receiver. The motivation to have combined the two references involves cancellation of echo for mobile phones that may occur in speech signals (e.g. see Sih *et al.*, col. 23-25) as would have been apparent in the teachings of Gentle, which describes communication between telephony devices.

As to claim 11, Gentle in view of Dowdal in view of Sih *et al.* teaches all of the

limitations as in claim 9.

Furthermore, Sih *et al.* teaches a transmitter (see Figure 1, element 14)

(e.g. Transceiver consists of a transmitter) to provide an echo cancellation signal

to said echo canceller (see Figure 1, element 10 and col. 6, lines 14-18).

Conclusion

8.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

9.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Ohlsson et al. (US 6,452,950) is cited to disclose adaptive jitter buffering in a

packet communication. Mantegna (US 2002/0046288) is cited to disclose latency

in a communication session for audio playback. Barriac et al. (US 2006/0277051) is cited to disclose evaluation of transmission times for voice signals.

10.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to PARAS SHAH whose telephone number is (571)270-1650. The examiner can normally be reached on MON.-THURS. 7:00a.m.-4:00p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571)272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Paras Shah/
Examiner, Art Unit 2626

12/04/2008

/Patrick N. Edouard/
Supervisory Patent Examiner, Art Unit 2626